

WHAT IS CLAIMED IS

1. A semiconductor device comprising:
a first insulating film formed over a substrate;
a first interconnection buried in at least a surface side of the first insulating film;
a second insulating film formed on the first insulating film with the first interconnection buried in, and including a groove-shaped via-hole having a pattern which is bent at a right angle formed in a region above the first interconnection;
and
a first buried conductor filled in the groove-shaped via-hole.
2. A semiconductor device according to claim 1, wherein
a width at a bent portion of the pattern of the groove-shaped via-hole is not more than a width at a straight portion thereof.
3. A semiconductor device according to claim 1, wherein
the groove-shaped via-hole is bent at a bent portion of the pattern a plurality of times at a larger angle than 90°.
4. A semiconductor device according to claim 3, wherein
the groove-shaped via-hole is bent at the bent portion of the pattern twice each at 135°.
5. A semiconductor device according to claim 3, wherein
a pattern of the first interconnection is bent in the same way as the pattern of the groove-shaped via-hole.

6. A semiconductor device according to claim 4, wherein a pattern of the first interconnection is bent in the same way as the pattern of the groove-shaped via-hole.

7. A semiconductor device comprising:

a first insulating film formed over a substrate;

a first interconnection buried in at least a surface side of the first insulating film, the first interconnection having a pattern which is bent at a right angle;

a second insulating film formed on the first insulating film with the first interconnection buried in, and including a groove-shaped via-hole formed in a region above the first interconnection; and

a first buried conductor filled in the groove-shaped via-hole,

the groove-shaped via-hole being interrupted at a corner of the pattern of the first interconnection.

8. A semiconductor device according to claim 1, further comprising:

a second buried conductor buried in a hole-shaped via-hole formed in the second insulating film on the first interconnection.

9. A semiconductor device according to claim 7, further comprising:

a second buried conductor buried in a hole-shaped via-hole formed in the second insulating film on the first interconnection.

10. A semiconductor device according to claim 8, wherein a width of the groove-shaped via-hole is 20 - 140% of a width of the hole-shaped via-hole.

11. A semiconductor device according to claim 9, wherein a width of the groove-shaped via-hole is 20 - 140% of a width of the hole-shaped via-hole.

12. A semiconductor device according to claim 8, wherein a width of the groove-shaped via-hole is not more than a width of the hole-shaped via-hole.

13. A semiconductor device according to claim 9, wherein a width of the groove-shaped via-hole is not more than a width of the hole-shaped via-hole.

14. A semiconductor device according to claim 1, including a plurality of groove-shaped via-holes arranged adjacent to each other formed in the second insulating film, at least a part of the grooves being formed of the groove-shaped via-hole.

15. A semiconductor device according to claim 7, including a plurality of groove-shaped via-holes arranged adjacent to each other formed in the second insulating film, at least a part of the grooves being formed of the groove-shaped via-hole.

16. A semiconductor device according to claim 14, wherein

the groove-shaped via-hole is formed at the outermost of the groove-shaped via pattern.

17. A semiconductor device according to claim 15, wherein

the groove-shaped via-hole is formed at the outermost of the groove-shaped via pattern.

18. A semiconductor device according to claim 14, wherein

the groove-shaped via pattern is formed on one and the same pattern of the first interconnection.

19. A semiconductor device according to claim 15, wherein

the groove-shaped via pattern is formed on one and the same pattern of the first interconnection.

20. A semiconductor device according to claim 1, wherein the groove-shaped via-hole is formed along an extending direction of the first interconnection.

21. A semiconductor device according to claim 7, wherein the groove-shaped via-hole is formed along an extending direction of the first interconnection.

22. A semiconductor device according to claim 1, wherein the first interconnection buried in the first insulating film is a conducting layer buried in the substrate.

23. A semiconductor device according to claim 7, wherein the first interconnection buried in the first insulating film is a conducting layer buried in the substrate.

24. A semiconductor device according to claim 1, wherein the first interconnection is formed of a conductor which

is mainly formed of copper.

25. A semiconductor device according to claim 7, wherein the first interconnection is formed of a conductor which is mainly formed of copper.

26. A semiconductor device according to claim 1, further comprising:

a second interconnection formed on the second insulating film and formed of a conductor which is mainly formed of aluminum.

27. A semiconductor device according to claim 7, further comprising:

a second interconnection formed on the second insulating film and formed of a conductor which is mainly formed of aluminum.

28. A semiconductor device according to claim 26, wherein

the first interconnection and the second interconnection have the same pattern.

29. A semiconductor device according to claim 27, wherein

the first interconnection and the second interconnection have the same pattern.

30. A semiconductor device comprising:

a first and a second impurity diffused regions formed in a semiconductor substrate;

a first insulating film formed on the semiconductor

substrate, and including a groove-shaped via-hole having a pattern bent at a right angle formed in a region above the first impurity diffused region and a hole-shaped via-hole formed in a region above the second impurity diffused region;

a first buried conductor buried in the groove-shaped via-hole; and

a second buried conductor buried in the hole-shaped via-hole,

a width of the groove-shaped via-hole being 20 - 140% of a width of the hole-shaped via-hole.

31. A semiconductor device according to claim 1, wherein the first buried conductor and the second buried conductor are formed of a conductor mainly formed of tungsten.

32. A semiconductor device according to claim 7, wherein the first buried conductor and the second buried conductor are formed of a conductor mainly formed of tungsten.

33. A semiconductor device according to claim 30, wherein

the first buried conductor and the second buried conductor are formed of a conductor mainly formed of tungsten.

34. A semiconductor device according to claim 1, wherein the second insulating film is a layer film of a silicon nitride film and a silicon oxide film or a layer film of an SiC film and a silicon oxide film.

35. A semiconductor device according to claim 7, wherein the second insulating film is a layer film of a silicon

nitride film and a silicon oxide film or a layer film of an SiC film and a silicon oxide film.

36. A semiconductor device according to claim 30, wherein

the second insulating film is a layer film of a silicon nitride film and a silicon oxide film or a layer film of an SiC film and a silicon oxide film.

37. A semiconductor device according to claim 1, wherein the first insulating film is a layer film of a silicon nitride film and a silicon oxide film or a layer film of an SiC film and an SiOC film.

38. A semiconductor device according to claim 7, wherein the first insulating film is a layer film of a silicon nitride film and a silicon oxide film or a layer film of an SiC film and an SiOC film.

39. A semiconductor device according to claim 30, wherein

the first insulating film is a layer film of a silicon nitride film and a silicon oxide film or a layer film of an SiC film and an SiOC film.

40. A method for fabricating a semiconductor device including a first insulating film formed over a substrate, a first interconnection buried in at least a surface side of the first insulating film, and a second insulating film formed on the first insulating film with the first interconnection buried in and including a groove-shaped

via-hole and a hole-shaped via-hole which are opened on the first interconnection,

in forming the groove-shaped via-hole and the hole-shaped via-hole in the second insulating film, a mask pattern having a design width of the groove-shaped via-hole smaller than a design width of the hole-shaped via-hole being used to form the groove-shaped via-hole and the hole-shaped via-hole.

41. A method for fabricating a semiconductor device including a first insulating film formed over a substrate, a first interconnection buried in at least the surface side of the first insulating film, a second insulating film formed on the first insulating film with the first interconnection buried in and including a groove-shaped via-hole and a hole-shaped via-hole which are opened on the first interconnection, and a buried conductor buried in the groove-shaped via-hole and the hole-shaped via-hole,

in forming the buried conductor, a deposited film thickness of a conducting film to be the buried conductor being set in consideration of a maximum width of the groove-shaped via-hole, so that the groove-shaped via-hole and the hole-shaped via-hole are filled by the buried conductor.